

SANITARY SEWER NOTES:

- ALL SANITARY SEWER PIPE IS TO BE SDR 35 PVC PRESSURE SEWER PIPE WITH COMPRESSION FITTINGS PER ASTM D-3034, AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.
- SEWERS SHALL BE LAID AT LEAST (10) FEET, HORIZONTALLY, FROM ANY WATER MAIN.
- CROSSINGS OF BURIED SEWERS AND WATER LINES SHALL BE AVOIDED AS MUCH AS POSSIBLE, HOWEVER WHERE CROSSINGS ARE NECESSARY, A MINIMUM OF 18 INCHES VERTICAL CLEARANCE SHALL BE MAINTAINED (MEASURED FROM THE BOTTOM OF THE UPPER PIPE TO THE TOP OF THE LOWER PIPE), PREFERABLY WITH THE WATER MAIN ABOVE THE SEWER.
- WHEN IT IS IMPOSSIBLE TO MAINTAIN PROPER HORIZONTAL AND VERTICAL SEPERATION, THE SEWER SHALL BE CONSTRUCTED OF WATERWORKS GRADE DUCTILE IRON PIPE WITH MECHANICAL JOINTS OR SDR 26 PVC PRESSURE SEWER PIPE IN ACCORDANCE WITH ASTM D-3034 WITH COMPRESSION FITTINGS, AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.
- ALL STUBS AND INDIVIDUAL SERVICE LINES SHALL BE 6" PIPE AS NOTED
- CONTRACTOR IS TO PROVIDE A MEANS OF ACCESS TO ALL RESIDENCES AND BUSINESSES DURING CONSTRUCTION.
- CONTRACTOR IS TO PROVIDE ADEQUATE EROSION CONTROL DURING CONSTRUCTION. ANY DISTURBED AREAS ARE TO BE RESEEDDED WITH IN 7 DAYS OF FINISHED GRADING.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY FOR COMPLIANCE WITH THE REQUIREMENTS OF SECTION 15, 1990 OSHA EXCAVATION STANDARDS, 29 CFR 1928 SUBPART P.
- USE HEAVY DUTY NEENAH #R-1642, MANHOLE FRAME w/ PICK HOLES FOR REMOVAL (OR EQUAL)
- WHERE MANHOLES OCCUR IN FLOOD PLAN OR DITCH, USE WATERTIGHT CASTING AND LIDS. LOCATION AS SHOWN ON PLANS.
- WATERTIGHT MANHOLE CASTINGS SHALL BE FURNISHED WITH A ROUND RUBBER GASKET, CONCEALED WATERTIGHT PICK HOLES, AND BRONZE CAPSCREW.
- FOR MANHOLE IN PRESENT STREETS, COVERS SHALL MATCH EXISTING GRADE.
- ALL SLOPES TO BE FINISHED WITHIN 1" TO TOP OF CASTING.
- ALL JOINTS TO BE WATERTIGHT "O" RING TYPE PER A.S.T.M. SPECIFICATION C-443, LATEST EDITION.
- ALL PRECAST CONES AND BARRELS TO BE REINFORCED PER A.S.T.M. SPECIFICATION C-487, LATEST EDITION.
- MANHOLE STEPS TO BE STANDARD PLASTIC WITH STEEL REINFORCING.
- DROP MANHOLES SHALL BE PROVIDED FOR ANY SEWER ENTERING A MANHOLE AT AN ELEVATION OF 24" OR MORE ABOVE MANHOLE INVERT; DROP PIPES TO BE OF THE SAME MATERIAL AS THE SEWER MAIN.
- ALL WYES AND HOUSE SERVICE RUNS SHALL BE PLUGGED WITH PLUGS HAVING RESILIENT JOINT MATERIAL MATCHING THAT OF THE PIPE JOINTS.
- ROOF DRAINS, FOUNDATION DRAINS, OR ANY OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
- INSPECTION: PERIODIC OBSERVATION OF WORK IN PROGRESS MAY BE PROVIDED BY COLUMBUS UTILITIES OR THEIR DESIGNEE. THE SANITARY SEWER UTILITY SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO HIS STARTING WORK AND PRIOR TO RESTARTING WORK AFTER DELAYS OR SHUT-DOWNS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HEREON PLANS AND IN ACCORDANCE WITH ANY APPLICABLE FEDERAL, STATE, LOCAL CODES OR LAWS, AND COLUMBUS UTILITIES HANDBOOKS.

SUBSTITUTIONS:

CERTAIN ITEMS IN THESE PLANS ARE IDENTIFIED BY SPECIFIC MODEL OR ITEM NUMBERS AS SUPPLIED BY NAMED MANUFACTURERS. THE ITEMS ARE SO SPECIFIED BECAUSE THEY EXHIBIT A PERFORMANCE STANDARD REQUIRED BY THE SPECIFIC SITE CONDITIONS. THESE ITEMS MAY ONLY BE SUBSTITUTED IF THE CONTRACTOR MAKES WRITTEN REQUEST OF THE DESIGNER, STATING THE MANUFACTURER AND MODEL OR ITEM NUMBER OF THE REQUESTED REPLACEMENT OF THE SPECIFIED ITEM. SUBSTITUTION MAY OCCUR AFTER THE CONTRACTOR RECEIVES WRITTEN APPROVAL FROM BOTH THE DESIGNER AND ALL APPROVING AGENCIES.

DEFLECTION AND LEAKAGE TESTING

A DEFLECTION AND LEAKAGE TEST SHALL ON ALL SEWER PIPE INSTALLED DURING THE CONSTRUCTION OF THIS PROJECT IN ACCORDANCE WITH 327 IAC 3-6-19. A DEFLECTION TEST SHALL BE PERFORMED ON ALL FLEXIBLE PIPE FOLLOWING THE ELAPSE OF 30 DAYS AFTER THE PLACEMENT OF FINAL BACKFILL. NO PIPE SHALL EXCEED A DEFLECTION OF 5% OR GREATER. THE DIAMETER OF RIGID BALL OR MANDREL USED FOR A DEFLECTION TEST SHALL BE NO LESS THAN 95% OF THE BASE INSIDE DIAMETER OF THE PIPE TO BE TESTED DEPENDENT ON WHAT IS SPECIFIED IN THE CORRESPONDING ASTM STANDARD. THE TEST SHALL NOT BE PERFORMED WITH THE AID OF A MECHANICAL PULLING DEVICE.

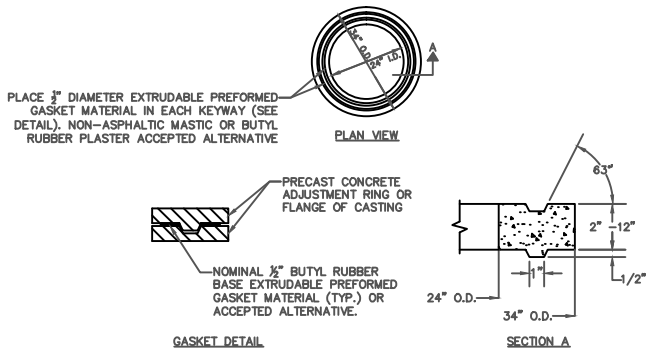
A HYDROSTATIC TEST SHALL BE PERFORMED WITH A MINIMUM OF 2 FEET OF POSITIVE HEAD. THE RATE OF EXFILTRATION OR INFILTRATION SHALL NOT EXCEED TWO HUNDRED GALLONS PER INCH OF PIPE DIAMETER PER LINEAR MILE PER DAY.

AIR TEST SHALL CONFORM TO ASTM F 1417-92

VACUUM TESTING

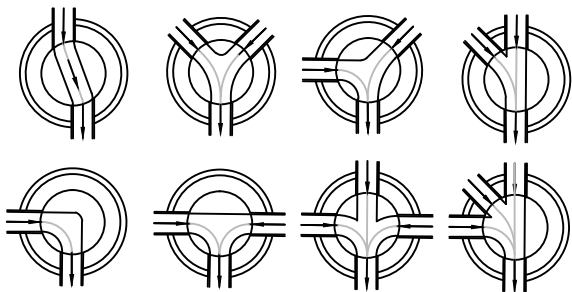
ALL SANITARY MANHOLES SHALL BE TESTED IN ACCORDANCE WITH ASTM C 1244-93. ALL PIPES ENTERING THE MANHOLE SHALL BE PLUGGED. THE TEST HEAD SHALL BE PLACED AND THE SEAL INFLATED PER MANUFACTURER'S RECOMMENDATIONS. A VACUUM PUMP OF TEN INCHES OF MERCURY SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH THE VALVES CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP NINE INCHES. FOLLOWING ARE MINIMUM ALLOWABLE TEST TIMES FOR MANHOLE ACCEPTANCE AT THE SPECIFIED VACUUM DROP. (NUMBERS ARE PER ASTM C 1244-93 FOR 48" DIA. MANHOLE)

DEPTH (FEET)	TIME (SECONDS)
4	10
8	20
12	30
16	40
20	50
24	59



PRECAST CONCRETE ADJUSTING RING DETAIL

STANDARD MANHOLE BENCHWALLS



DWN BY:	AJB
DATE:	12/23/2014
SCALE:	N.T.S.

CITY OF COLUMBUS
OFFICE OF CITY ENGINEER
123 WASHINGTON STREET
COLUMBUS, INDIANA 47201

SHEET TITLE:

SANITARY SEWER
TYPICAL DETAILS AND NOTES

CERT.

SHEET:

OF:

JOB No.

DRG. No.

FILE: